Bloomberg Philanthropies
INITIATIVE FOR GLOBAL ROAD SAFETY

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Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) 2020–2025 Roadside Observational Study

Technical Appendix for Dhaka North Round Four

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The Johns Hopkins International Injury Research Unit partnered with the CIPRB to conduct roadside observations in Round four (March 2023). The methods for these findings were developed by the Johns Hopkins International Injury Research Unit and implemented in collaboration with the CIPRB. This report provides results from observational surveys that represent population-level (citywide) prevalence of important road safety risk factor, speed in Round four. For speed, there were approximately 91,832 observations

Observation sites were selected to obtain a representative sample of vehicles and road users in each city, conditional on the safety of observers. There were 15 observation sites per risk factor, and a standardized protocol was used with vehicles selected for observation in a systematic quasi-random fixed sequence. Observations were performed between 06:30 a.m. and 07:00 p.m. on both weekend days and weekdays. The methods were designed to estimate citywide prevalence and cannot provide insights into interventions conducted in specific locations in the city.

This technical appendix was created on June 12th, 2023 by the Johns Hopkins International Injury Research Unit using the following files:

- R4_Dhaka_BIGRS3 speed_mobile new server_230506 NA.do
- R4_DhakaNorth_BIGRS3 speed.dta

Table of Contents

1. Speeding

1.1. Total number of observed vehicles
1.2. Prevalence of exceeding the posted speed limit and summary measures of speed among all vehicles
1.3. Histogram of speed among all vehicles
1.4. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle type
1.5. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle type group
1.6. Histogram of speed by vehicle type group
1.7. Prevalence of exceeding the posted speed limit and summary measures of speed by road type
1.8. Prevalence of traveling faster than 30 km/h in collector/local roads and 50 km/h in arterial roads
1.9. Histogram of speed by road type
1.10. Prevalence of exceeding the posted speed limit by extent of excess and summary measures of speed by speed limit
1.11. Prevalence of exceeding the posted speed limit by extent of excess and vehicle type
1.12. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle ownership
1.13. Prevalence of exceeding the posted speed limit and summary measures of speed by day of the week
1.14. Prevalence of exceeding the posted speed limit and summary measures of speed by weekday/weekend
1.15. Prevalence of exceeding the posted speed limit and summary measures of speed by observation session start time
1.16. Summary measures of speed among vehicles in free flow speed
1.17. Summary measures of speed among vehicles in free flow speed by vehicle type group
1.18. Summary measures of speed among vehicles in free flow speed by road type
1.19. Summary measures of speed among vehicles in free flow speed by speed limit
1.20. Summary measures of speed among vehicles in free flow speed by vehicle ownership
1.21. Summary measures of speed among vehicles in free flow speed by day of the week
1.22. Summary measures of speed among vehicles in free flow speed by observation session start time

1. Speeding

Key findings

- Overall, 6% of all vehicles were observed to be driving above the posted speed limit.
- When disaggregated by vehicle type, heavy vehicles were by far the leading type of vehicle exceeding the speed limit (12%), compared to light vehicles (5%) and motorcycles (3%).
- Prevalence of speeding over the posted limit is the highest on arterial (7%), and 3% of the vehicles on the arterial roads speed over 50 km/h.
- About 32% of vehicles on collector/local roads were traveling above the recommended speed of 30 km/h.
- Commercial vehicles have the highest prevalence of speeding 12% among all when disaggregated by ownership.
- Speeding over the posted limit is the most prevalent on Fridays (9%).

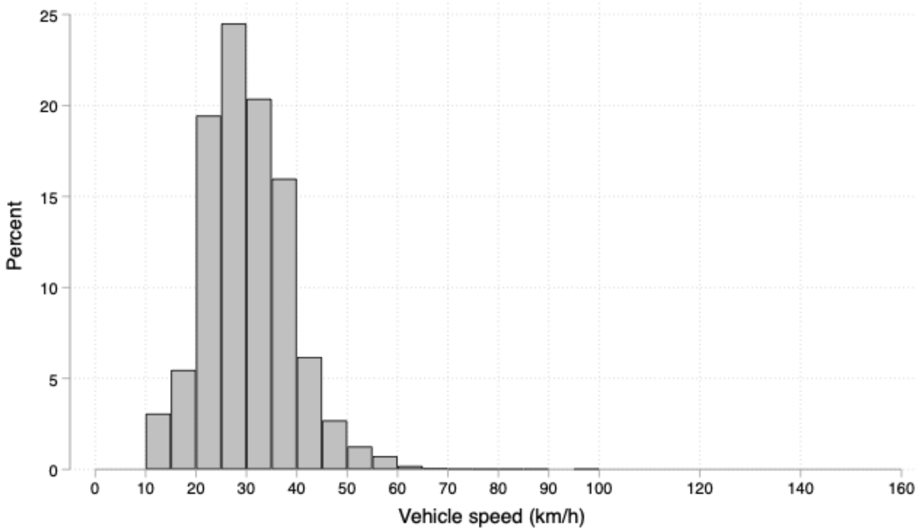
1.1. Total number of observed vehicles

91,832

1.2. Prevalence of exceeding the posted speed limit and summary measures of speed among all vehicles

N	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
91,596	6	30	9	28	38

1.3. Histogram of speed among all vehicles



1.4. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle type

Vehicle type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Sedans/Saloons	24,717	1	30	8	28	38
Pickup/Light trucks	3,992	12	29	8	28	37
Truck/Large trucks	0	.	19	5	21	25
Buses	8,824	12	27	7	26	35
Minibuses/Minivans	5,472	19	30	8	28	38
SUVs	9,210	2	29	8	27	37
Three-wheelers	14,031	10	30	7	30	36
Motorcycles	25,350	3	31	10	30	41

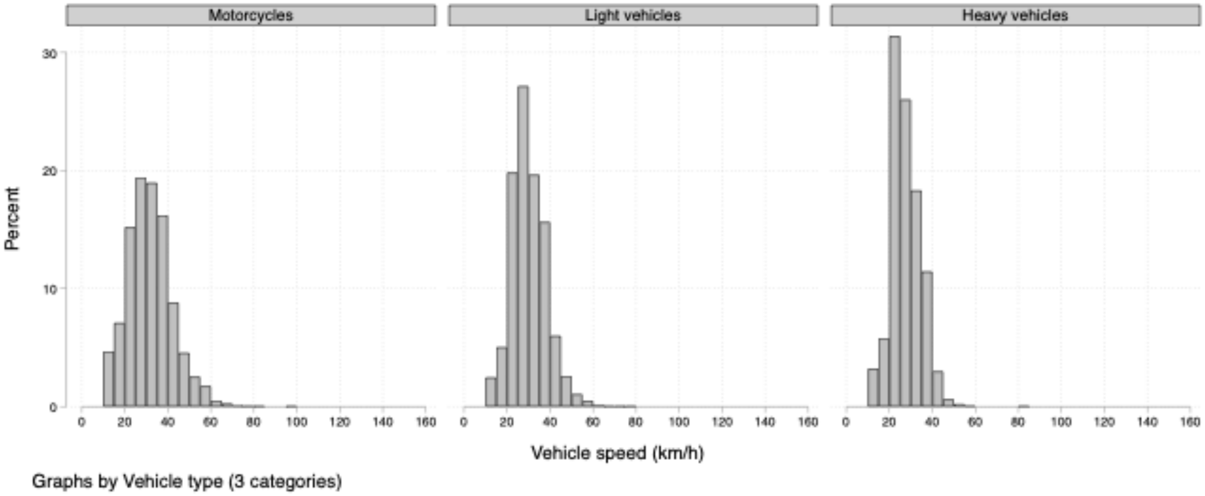
1.5. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle type group

Vehicle type group	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Motorcycles	25,350	3	31	10	30	41
Light vehicles*	43,391	5	29	8	28	38
Heavy vehicles†	8,824	12	27	7	26	35

* Light vehicles include sedans/saloons/SUVs/4WDs, minibuses/minivans, and pickup/light trucks.

† Heavy vehicles include buses and trucks/large trucks.

1.6. Histogram of speed by vehicle type group



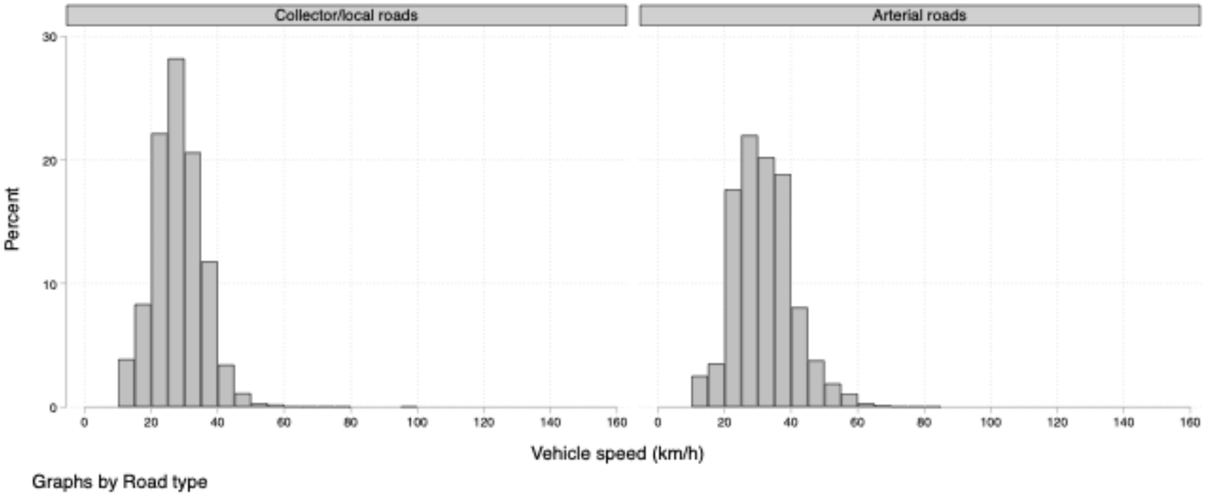
1.7. Prevalence of exceeding the posted speed limit and summary measures of speed by road type

Road type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Collector/local	37,013	4	27	7	27	35
Arterial	54,583	7	31	9	31	40

1.8. Prevalence of traveling faster than 30 km/h in collector/local roads and 50 km/h in arterial roads

	n	Prevalence (%)
> 30 km/h in collector/local	37,249	32
> 50 km/h in arterial	54,583	3

1.9. Histogram of speed by road type



1.10. Prevalence of exceeding the posted speed limit by extent of excess and summary measures of speed by speed limit

Speed limit (km/h)	n	Prev. of speed > limit (%)	Prev. of speed > limit + 10 km/h (%)	Prev. of speed > limit + 20 km/h (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
30	9,509	23	0	0	26	7	25	33
40	13,779	5	0	0	27	8	26	35
50	9,092	3	0	0	31	9	32	40
60	11,258	1	0	0	35	10	35	45
999	0	.	0	0	23	6	23	27

1.11. Prevalence of exceeding the posted speed limit by extent of excess and vehicle type

Speed limit (km/h)	n	Prev. of speed > limit (%)	Prev. of speed > limit + 10 km/h (%)	Prev. of speed > limit + 20 km/h (%)
Sedans/Saloons	24,717	1	0	0
Pickup/Light trucks	3,992	12	0	0
Truck/Large trucks	0	.	0	0
Buses	8,824	12	0	0
Minibuses/Minivans	5,472	19	0	0
SUVs	9,210	2	0	0
Three-wheelers	14,031	10	0	0
Motorcycles	25,350	3	0	0

1.12. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle ownership

Vehicle ownership type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Commercial	31,578	12	29	7	28	37
Taxi	76	9	34	9	34	41
Ride-share	205	10	37	9	37	47
Other	59,737	2	30	9	28	39

1.13. Prevalence of exceeding the posted speed limit and summary measures of speed by day of the week

Day of the week	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Monday	9,789	3	28	9	27	36
Tuesday	13,974	6	32	8	31	39
Wednesday	9,770	3	27	6	25	33
Thursday	15,988	3	29	9	28	38
Friday	15,287	9	32	9	32	41
Saturday	15,458	7	29	9	29	38
Sunday	11,330	7	29	9	28	38

1.14. Prevalence of exceeding the posted speed limit and summary measures of speed by weekday/weekend*

	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Weekday	60,851	4	29	8	28	37
Weekend	30,745	8	31	9	30	39

* The weekend is Friday and Saturday.

1.15. Prevalence of exceeding the posted speed limit and summary measures of speed by observation session start time

Session start time	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
6:30 a.m. to 9 a.m.	17,810	7	31	8	30	39
9:01 a.m. to 11 a.m.	18,243	5	29	8	28	37
11:01 a.m. to 2 p.m.	18,091	6	30	9	28	38
2:01 p.m. to 4 p.m.	19,872	6	30	8	28	37
4:01 p.m. to 7 p.m.	17,580	5	29	9	27	38

The following analyses on speeding are restricted to vehicles in free flow speed, which are defined as those traveling faster than the speed limit when/where there is no impedance for drivers to speed freely, such as bad weather, a junction, tight bend, speed bump, stop sign, crosswalk, and law enforcement activities nearby.

1.16. Summary measures of speed among vehicles in free flow speed

n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
3,270	41	9	37	52

1.17. Summary measures of speed among vehicles in free flow speed by vehicle type group

Vehicle type group	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Motorcycles	699	53	9	52	63
Light vehicles*	1,530	38	7	36	45
Heavy vehicles†	1,041	36	5	35	41

* Light vehicles include sedans/saloons/SUVs/4WDs, minibuses/minivans, and pickup/light trucks.

† Heavy vehicles include buses and trucks/large trucks.

1.18. Summary measures of speed among vehicles in free flow speed by road type

Road type	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Collector/local	887	37	6	35	43
Arterial	2,383	42	10	40	53

1.19. Summary measures of speed among vehicles in free flow speed by speed limit

Speed limit (km/h)	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
30	2,133	36	4	35	39
40	727	45	5	44	51
50	259	55	5	55	60
60	151	66	5	64	69

1.20. Summary measures of speed among vehicles in free flow speed by vehicle ownership

Vehicle ownership type	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Commercial	2,449	37	6	36	44
Taxi	4	45	8	44	55
Ride-share	18	47	6	45	55
Other	799	51	11	51	63

1.21. Summary measures of speed among vehicles in free flow speed by day of the week

Day of the week	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Monday	197	39	9	36	47
Tuesday	568	42	10	38	53
Wednesday	180	36	6	34	41
Thursday	319	41	11	36	55
Friday	877	42	10	39	55
Saturday	697	40	8	37	47
Sunday	432	40	7	41	47

1.22. Summary measures of speed among vehicles in free flow speed by observation session start time

Session start time	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
6:30 a.m. to 9 a.m.	789	40	8	37	48
9:01 a.m. to 11 a.m.	535	40	9	36	51
11:01 a.m. to 2 p.m.	667	41	9	38	52
2:01 p.m. to 4 p.m.	778	40	9	37	51
4:01 p.m. to 7 p.m.	501	44	11	41	55